Farmer Adaptation to Climate Change and Implications for Household Food Security in Anuradhapura District of Sri Lanka

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Climate change manifestations can have detrimental effects on the rural farmer households in developing countries. This study investigates farm-level adaptation to climate change and its implications for household food security in Anuradhapura district of Sri Lanka. Stratified sampling technique was followed to select a sample of 110 paddy farmers in Anuradhapura district and they were surveyed using a structured questionnaire. An ordered logistic regression was carried out to identify the impact of climate change adaptation practices at farm-level on the household food security. A Confirmatory Factor Analysis (CFA) was employed to quantify and validate the statements reflecting the determinants such as social capital (i.e. social networks), climate change adaptation and exposure to climate change. Indices were computed to quantify these variables using the responses provided by the farmers, which were then used as independent variables. Farmer households were categorized into four food security levels ranging from food secure to severely food insecure using the Household Food Insecurity Access (HFIA) survey technique. The study revealed that over 75% of the households were mildly food insecure and more than 80% of the farmers adopted climate change adaptation practices. According to the logistic regression analysis, farmers who practiced climate change adaptation strategies are more food secure than those who did not. The study also revealed that, social network impact, exposure to climate changes, climate change adaptation and level of education have significant ($p<0.05$) impacts on the level of household food security. Farmers identified the lack of financial assistance followed by inadequate knowledge and extension services to be the two major reasons for non-adoption. Therefore, policies should focus on encouraging farmer communities to follow climate change adaptation strategies through awareness, training and by increasing household endowments. Empowerment of farmers is critical in facilitating climate adaptation strategies to reduce household food insecurity.

Keyword: Adaptation, Climate change, Food security, Farmer household